Plants and their Children. By Mrs. William Starr Dana. Illustrated by Alice Josephine Smith. Pp. 272. American Book Company, 1896.

The author presents in a popular form the study of plant life so as to bring it within the comprehension and adapt it to the tastes of a child.

An appreciation of the psychologic truth, "activity is the law of childhood" is shown by the attention accorded to the special contrivances and mechanisms by which insects are trapped and attracted, and seeds disseminated. Vital processes, similar to those in the child's experience such as sleep, respiration and circulation are simply and clearly treated. Several cuts, reproduced from the Natural History of Plants, translated from the German of Kerner von Marilaun, add to the general attractiveness of the book, which might profitably be used at times as a reader to supplement the work of a class studying botany.

M. A. S.

Proceedings of the Club.

WEDNESDAY EVENING, March 31, 1897.

In the absence of the President, Vice-President Allen presided. There were twenty persons present.

The first paper, by Dr. Albert Schneider, "The Phenomena of Symbiosis," and a paper by Leonard Baron on "Horticulture in Botanical Gardens," were read by title, owing to unavoidable detentions.

The evening was occupied by a paper by Professor Edward S. Burgess on "*Aster macrophyllus* and its Allies," illustrated by charts of relationship and by numerous specimens.

The speaker sketched briefly the history of the species *Aster macrophyllus*, in which it has been the custom of American botanists to include all large-leaved *Asters*. He showed how diverse these *Asters* are and in what confusion their assignment to a single species results, and indicated the characters according to which they form two groups each of several species and varieties.

The paper which will soon appear in print, was discussed by

Mr. E. P. Bicknell, who confirmed the distinctions offered by the results of his observations about New York, and by Dr. Britton, who paid a tribute to the masterly manner in which Dr. Gray had treated the subject of the genus *Aster* so far as material was then available and who referred to the special need for extended field-work and further collaboration which this genus had long presented.

TUESDAY EVENING, April 13, 1897.

In the absence of the officers, Dr. N. L. Britton presided. There were thirteen persons present. Mr. Ellis A. Apgar and Mr. Charles H. Coffin were elected active members.

In pursuance of a resolution adopted at the next previous meeting, the Secretary announced the following Field Committee for 1897: Chairman, Dr. John K. Small; Committee-members, Dr. N. L. Britton, Mr. John H. Stotler, Mr. L. G. Fay, Mr. W. A. Bastedo.

The subject of a nominee from the Club for the forthcoming award from the Newberry Research Fund was then considered, and the application of Mr. Arthur Hollick for that nomination was read. Action was deferred to the next meeting.

The scientific program was then taken up. Dr. Albert Schneider presented a paper entitled, "Methods employed in the Examination of Powdered Drugs and their Adulterants."

He described certain microscopic structural features which he had investigated with a view to find characters by which to distinguish the more important drugs, giving details of such characteristics determined by him for mace, senna, leaves of *Eucalyptus globulus*, etc.

Dr. Britton spoke of the utility of this work and its object in behalf of the new edition of the U. S. Pharmacopoeia.

The paper was followed by an early adjournment to facilitate the attendance of members upon the annual exhibit given by the N. Y. Microscopical Society.

WEDNESDAY EVENING, April 28, 1897.

In the absence of officers, Prof. Underwood was elected chairman of the meeting and Prof. Britton, secretary. There were twenty-six persons present.

The application of Mr. Arthur Hollick for recommendation to the Council of the Scientific Alliance for the grant of $50 for original research in palaeontology from the Newberry Research Fund, was endorsed and the secretary of the club was instructed to certify this action to the secretary of the Council of the Scientific Alliance, and to transmit with the certification a copy of Mr. Hollick's application.

Dr. Small, Chairman of the Field Committee, reported progress in the arrangement of excursions for the season.

The Chairman announced to the Club the recent death of Dr. Emily L. Gregory, Professor in Botany in Barnard College, and remarked on her life and works. Dr. H. M. Richards, Dr. H. H. Rusby and Miss Alexandrina Taylor were appointed a committee to draw suitable resolutions and report them to the club at a subsequent meeting.

The Corresponding Secretary reported that all the corresponding members recently elected had accepted their elections.

The scientific programme comprised the following papers:—

1. By Prof. L. M. Underwood, "Notes on the Ferns of Japan."

The immediate occasion of this paper was the receipt during the past year of two separate collections of Japanese ferns of about fifty species each, which, being from different portions of the island, scarcely duplicated each other. Some of the more interesting were shown, including *Camptosorus Sibiricus*, *Cystopteris Japonica*, and *Struthiopteris orientalis*.

The insular position of Japan together with a considerable range of latitude, equalling that from St. Paul, Minn., to Mobile, Ala., gives Japan a larger proportion of ferns than we have in the United States, although the area of the islands is only that of the northeastern States as far as the Virginias, together with about one-half of Ohio.

The forms are those of temperate climates and agree well with those of the adjacent mainland so far as the latter are known. A few subtropical forms enter the flora, but the really tropical species do not reach the islands.

Many species are common inhabitants of Furope as well as the eastern United States, but the ferns of Japan offer very little support to the once prevalent notion of the great similarity of its flora to

that of the eastern United States. In fact about as many Japanese species have as many near allies in Pacific America as in other portions of the country, if we exclude the species quite generally distributed through the north temperate zone.

Discussing the paper, Prof. Britton cited a number of instances among spermatophytes, in which species supposed to be common to Japan and eastern North America had been shown to be distinct. He maintained that the theory of migration, as ordinarily accepted, was insufficient to account for such similarity between the floras of the two regions as actually exists. Mr. T. H. Kearney, Jr., remarked that in comparing the grass flora of the two regions he had found that, exclusive of circumboreal species, only two species are in common.

The second paper was by P. A. Rydberg, entitled "Floral Features of Western Nebraska." It is a popular misconception that the country from Illinois to the Rocky Mountains constitutes one undifferentiated region. In fact there are two entirely different regions, viz.: 1. The Prairie Region with rich loam and a comparatively good supply of rain and extending into the Eastern Dakotas, Nebraska and Kansas. 2. The Region of the Great Plains, with dry hard soil and scanty rainfall and comprising the western portion of said States, Eastern Colorado and Montana and the larger portion of Wyoming. In Nebraska the prairie region includes the eastern and south central portion of the State. The north central portion constitutes a region unique to Nebraska, the Sand-Hill Region, described at one of the February meetings of the Club. Mr. Rydberg corrected a statement made by him then, viz.: that he had seen "blow outs" in that region 300 feet deep; he had intended to say 300 feet in diameter and 60 to 70 feet deep.

The western portion of the State is made up of high plains, except a small portion of the northwestern corner containing the "Pine Ridge" and the "Bad Lands" of White River and Hat Creek. The plains have very few rivers, and the drainage is mostly by means of "sand-draws." Seen from a hill a sand-draw resembles a well-beaten and winding sandy road. It is a stream with no visible water. The water is running from one to fifteen feet below the surface. Even the larger streams, as the Lodge Pole and South Platte, sometimes sink down in the sand.

The plains are mostly covered by short grasses, the so-called Buffalo grasses. In the hot dry autumn, these become self-cured, and form an excellent winter pasture for the stock. A little hay is cut on the lowlands and fed to the animals during snowstorms. Otherwise the cattle and horses feed out during the whole winter. The Buffalo grasses are: the original Buffalo grass, *Bulbilis dactyloides*, Blue and Black Grama, *Bouteloua oligostachya* and *B. hirsuta* and "Nigger Heads," *Carex filifolia.*

In a region where the rainfall is comparatively scant and distributed only during certain seasons of the year, the plants must be so constituted as to be able to withstand a good deal of drought. In other words the evaporation must either be reduced to a minimum or the plant must have special stores of water. The planst peculiar to this region may be divided into the following groups:

1. Very hairy plants generally covered by thick pannose pubescence, which retain the moisture; as species of *Eriogonum*, *Astragalus*, *Eurotia*, *Senecio*, *Evolvulus* and *Artemisia.*

2. Plants with glaucous foliage having a hard epidermis, as *Yucca glauca*, *Rumex venosus*, *Argemone alba*, and several grasses.

3. Plants with white often shreddy bark, as species of *Mentzelia* and *Anogra.*

4. Plants with very narrow and often involute leaves, as *Lygodesmia juncea*, *L. rostrata* and several grasses and sedges.

5. Plants with fleshy stems in which the surface is reduced to a minimum and no leaves as the Cacti.

6. Plants with a deep-seated, enlarged root as the Bush Morning glory, *Ipomoea leptophylla*, and the Wild Pumpkin, *Cucurbita foetidissima.* Mr. Rydberg had seen a root of the former three feet long and almost two feet in diameter.

7. Plants covered with glands, containing essential oils, as *Dysodia papposa* and *Pectis angustifolia.* The oils are supposed by some to have a cooling effect, partly by taking up heat when evaporated, and partly by surrounding the plant with a cooler atmosphere, their specific heat being much less than the air.

Numerous specimens were exhibited.

Two papers followed by Dr. J. K. Small, (a) "The Sessile-flowered *Trillia* of the Southern states." (b) "Notes on Epilobiaceae." Both papers are published in the April issue of the BULLETIN.

Dr. Britton exhibited a specimen of *Silene conica* L., collected by Mr. A. D. Selby, at Clyde, Ohio. This species is a recent immigrant from Europe.

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